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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,889	06/28/2006	Ling Zheng	T3653-8972US01	1905
62574	7590	08/03/2009	EXAMINER	
Jason H. Vick Sheridan Ross, PC Suite # 1200 1560 Broadway Denver, CO 80202			JAMAL, ALEXANDER	
			ART UNIT	PAPER NUMBER
			2614	
			NOTIFICATION DATE	DELIVERY MODE
			08/03/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jvick@sheridanross.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,889	<b>Applicant(s)</b> ZHENG ET AL.	
	<b>Examiner</b> ALEXANDER JAMAL	<b>Art Unit</b> 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Based upon the submitted amendment, the examiner notes that claims 1,5 have been amended.

### ***Claim Rejections - 35 USC § 103***

1. Claims 1- rejected under 35 U.S.C. 103(a) as being unpatentable over Cioffi et al (US 20080071516 A1), and further in view of Shi et al (US 20040101130 A1).

As per **claim 1**, Cioffi discloses a DSL loop qualification system comprising a channel capacity estimator that estimates a loop characteristic (such as length) and uses it to compare to known loop types in order to gauge an estimated data rate (para. 17,56). A possible data rate must be estimated before it can be used to set the user's settings. The data rate is based on a comparison to known loop types, which have associated estimated data rates. Theoretical results are determined (the models disclosed in para. 22). However, Cioffi does not disclose an optimized TDR means to determine the disclosed estimated loop length.

Shi discloses a known TDR algorithm to determine DSL loop length (para. 24). The algorithm and as such, the TDR length is optimized (high precision: abstract). It

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would have been obvious to one of ordinary skill in the art at the time of this application to implement a known and high precision means of determining loop length for the purpose of producing the disclosed estimates in Cioffi.

As per **claim 2,4,8,10,12,13,14,16,18**, the device inherently detects a time shift between a theoretical echo and a received echo because the system correlates the received echo delay to a loop length (Shi para. 24). The correlation between the loop length and echo delay must derive from a theoretical delay measurement in a known system (in order to know exactly how they would correlate). As such the system detects the difference or 'time shift' (via the correlation) between the measured and theoretical echo delays.

As per **claims 6,7,9,15,17,19**, it is rejected as per the claim 1,2 rejections.

As per **claim 3**, it is rejected as per the claim 1 rejection.

As per **claims 5,11**, the echoes are caused by impedance mismatches, which would cover all the claimed type of loops.

### ***Response to Arguments***

1. Applicant's arguments have been fully considered but they are not persuasive.

As per applicant's argument that the cited prior art does not disclose an optimization used to estimate the loop length, the examiner disagrees. Applicant argues

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that the high precision means taught by Shi are not an optimization. The examiner disagrees. To optimize something is to improve the efficiency or quality of something. The improved precision means taught by Shi is an optimization of existing measuring/calculating methods. Additionally, the examiner notes that Shi also discloses the use of using a maximum value ( $V(0)$ ) (para. 28-31), which would also read as an optimization (as used in mathematics).

As per applicant's arguments that Shi does not disclose detecting a time shift between a theoretical echo and an actual measured echo, the examiner disagrees. Shi detects a delay of a measured echo. An echo delay inherently comprises a measured echo compared to a reference point in time (the point in time where a theoretical echo would exist). This is the time difference between the two echoes. A delay cannot exist without two separate points in time, a measured point compared to a reference point (or in this case a measured echo compared to a 'theoretical' reference echo).

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498, and whose email address is alexander.jamal@uspto.gov

The examiner can usually be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone or email are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499.

The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

/Alexander Jamal/

Primary Examiner, Art Unit 2614

Examiner Alexander Jamal

July 30, 2009